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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
CRAWFORD, JASON	
ART UNIT	PAPER NUMBER
2819	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/574,151	MAGET ET AL.	
	Examiner	Art Unit	
	JASON CRAWFORD	2819	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13,14,16-22 and 24-32* is/are rejected.

7)☒ Claim(s) *15 and 23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 February 2007* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/10/07,2/26/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Figures 10-14 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 13, 14, 16-18, 20-22 , 25-29 and 31-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Ravi et al. (US 6,850,122).

In regards to claim 13, Ravi discloses of an injection-locked oscillator circuit comprising at least two oscillator stages (901, 902), each oscillator stage comprising: an inductance; a capacitance connected in parallel with the inductance (930 and 932

respectively); at least one output node (205 and 206 respectively); a coupling-switching element subcircuit (510, 512, 910 and 400) comprising at least one coupling-switching element (510, 512 respectively) which is coupled in parallel with the inductance and the capacitance (930 and 932 respectively) in such a way that in each case precisely one coupling-switching element (510, 512) is present serially; and at least one input terminal (514, 516 respectively) formed by means of the control terminal of the coupling-switching element (510, 512, 910 and 400); wherein the oscillator stages (901, 902) of the injection-locked oscillator circuit are coupled by means of the coupling-switching element subcircuits (510, 512, 910 and 400). (Fig 9, Column 7 Lines 54-67 and Column 8 Lines 1-23)

In regards to claim 14, Ravi discloses of the injection-locked oscillator circuit as claimed of claim 13, wherein each oscillator stage (901 and 902) has two output terminals (205 and 206 respectively, however, the stages 901 and 902 may contain the differential output attached to the opposite side of each stages respective output as notoriously known in the art) at which signals that are differential with respect to one another are present. (Fig 9, Column 7 Lines 54-67 and Column 8 Lines 1-23)

In regards to claim 16, Ravi discloses of the injection-locked oscillator circuit of claim 13, wherein the coupling-switching elements (510, 512) are transistors. (Fig 9, Column 7 Lines 54-67 and Column 8 Lines 1-23)

In regards to claim 17, Ravi discloses of the injection-locked oscillator circuit of claim 16, wherein the transistors are NMOS and/or PMOS transistors (510 and 512 are PMOS transistors). (Fig 9, Column 7 Lines 54-67 and Column 8 Lines 1-23)

In regards to claim 18, Ravi discloses of the circuit of claim 17, wherein a respective one of the transistors connected in parallel is a PMOS transistor (for example 510, which is in parallel with 930) and the other transistor connected in parallel is an NMOS transistor (for example 358, which is in parallel with 732, although 358 was not relied on in claims 25 and 26, it does read on the claimed subject matter). (Fig 9, Column 7 Lines 54-67 and Column 8 Lines 1-23)

In regards to claim 20, Ravi discloses of the circuit of claim 13, wherein the oscillator stages (901, 902) have an active element (each stage comprises transistors). (Fig 9, Column 7 Lines 54-67 and Column 8 Lines 1-23)

In regards to claim 21, Ravi discloses of the injection-locked oscillator circuit off claim 13, wherein an even number (2) of oscillator stages (901, 902) are coupled to form an injection-locked oscillator circuit. (Fig 9, Column 7 Lines 54-67 and Column 8 Lines 1-23)

In regards to claim 22, Ravi discloses of the injection-locked oscillator circuit of claim 21, wherein the number of input terminals (2) of each oscillator stage (901, 902) is equal to the number of oscillator stages (2) of the injection- locked oscillator circuit. (Fig 9, Column 7 Lines 54-67 and Column 8 Lines 1-23)

In regards to claim 25, Ravi discloses of a semiconductor comprising: a first inductance coupled in parallel with a first capacitance (930); a first switching circuit (510) coupled in parallel with the first inductance and capacitance (930), the first switching circuit (510) having a control terminal (514) configured as a first input; a second inductance coupled in parallel with a second capacitance (932); a second

switching circuit (512) coupled in parallel with the second inductance and capacitance (932), the second switching circuit (512) having a control terminal (516) configured as a second input; and means (910, 400) for coupling the first and second switching circuits (514, 516 respectively) to form an injection-locked oscillator circuit. (Fig 9, Column 7 Lines 54-67 and Column 8 Lines 1-23)

In regards to claim 26, Ravi discloses of the circuit of claim 25, wherein the first inductance, first capacitance and first switching circuit (930 and 510 respectively) form a first oscillator stage (901) and the second inductance, second capacitance and second switching circuit (932 and 512 respectively) form a second oscillator stage (902), wherein each oscillator stage has two output terminals with differential signals (205 and 206 respectively, however, the stages 901 and 902 may contain the differential output attached to the opposite side of each stages respective output as notoriously known in the art). (Fig 9, Column 7 Lines 54-67 and Column 8 Lines 1-23)

In regards to claim 27, Ravi discloses of the circuit of claim 26, wherein the coupling-switching elements (510, 512) are transistors. (Fig 9, Column 7 Lines 54-67 and Column 8 Lines 1-23)

In regards to claim 28, Ravi discloses of the circuit of claim 26, wherein the transistors are NMOS and/or PMOS transistors (510 and 512 are PMOS transistors). (Fig 9, Column 7 Lines 54-67 and Column 8 Lines 1-23)

In regards to claim 29, Ravi discloses of the circuit of claim 26, wherein a respective one of the transistors connected in parallel is a PMOS transistor and the other transistor (for example 510, which is parallel with 930) connected in parallel is an

NMOS transistor (for example 358, which is in parallel with 732, although 358 was not relied on in claims 25 and 26, it does read on the claimed subject matter). (Fig 9, Column 7 Lines 54-67 and Column 8 Lines 1-23)

In regards to claim 31, Ravi discloses of the circuit of claim 26, wherein the oscillator stages (901, 902) have an active element (each stage comprises transistors). (Fig 9, Column 7 Lines 54-67 and Column 8 Lines 1-23)

In regards to claim 32, Ravi discloses of the circuit claim of 26, wherein an even number (2) of oscillator stages (901, 902) are coupled to form an injection-locked oscillator circuit. (Fig 9, Column 7 Lines 54-67 and Column 8 Lines 1-23)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 19 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ravi et al. (US 6,850,122) in view of In re Stevens (101 USPQ 284 (CCPA 1954)).

In regards to claims 19 and 30, Ravi discloses of the claimed invention except for having the capacitances being formed by means of varactors. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the capacitances being formed by means of varactors, since it has been held that the provision of adjustability, where needed, involves only routine skill in the art.

4. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ravi et al. (US 6,850,122) in view of St. Regis Paper Co. v. Bemis Co. (193 USPQ 8) and/or In re Karlson (136 USPQ 184).

In regards to claim 24, Ravi discloses of claimed invention except for the injection-locked oscillator having an odd number of stages. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have an odd number of stages in an injection-locked oscillator, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in art (St. Regis Paper Co. v. Bemis Co.), likewise it has been held that omission of an element and its function in a combination where the remaining elements perform the same function as before involves only routing skill in the art (In re Karlson).

Allowable Subject Matter

5. Claims 15 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

In regards to claim 15, the prior art does not disclose of the injection-locked oscillator circuit of claim 13, wherein the coupling-switching element subcircuit *has two additional coupling-switching elements which are connected up to one another and are*

*connected in **parallel** with the coupling-switching elements connected up to one another*, nor would it have been obvious to one of ordinary skill in the art to do so.

In regards to claim 23, the prior art does not disclose of the injection-locked oscillator circuit of claim 22, wherein the injection-locked oscillator circuit *has four oscillator stages, each oscillator stage having four input terminals and two output terminals and two of the input terminals being coupled to the output terminals of a preceding oscillator stage of the injection-locked oscillator circuit in the signal flow direction, and the other two input terminals being coupled to the output terminals of the downstream injection-locked oscillator circuit in the signal flow direction*, nor would it have been obvious to one of ordinary skill in the art to do so.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON CRAWFORD whose telephone number is (571)272-6004. The examiner can normally be reached on Mon-Thurs 7:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rexford Barnie can be reached on (571) 272-7492. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JASON CRAWFORD/
Examiner, Art Unit 2819

/Rexford N BARNIE/

Supervisory Patent Examiner, Art Unit 2819